## CLAIMS:

- 1. Hollow nanoparticles that comprise particle-forming first proteins, containing a bio-recognizing molecule for recognizing a specific cell, wherein at least one of the first proteins interacts with a second protein forming a capsid structure.
- 2. The hollow nanoparticles as set forth in claim 1, wherein the first protein comprises a hepatitis B virus surface-antigen protein.
- 3. The hollow nanoparticles as set forth in claim 2, wherein the first protein comprises a hepatitis B virus surface-antigen protein whose hepatocyte recognition site is modified to another bio-recognizing molecule.
- 4. The hollow nanoparticles as set forth in claim 3, wherein the first protein comprises a hepatitis B virus surface-antigen protein whose hepatocyte recognition site is modified to a beta-cellulin or a basic fibroblast growth factor.
- 5. The hollow nanoparticles as set forth in claims 1 through 4, wherein the second protein comprises a hepatitis B virus core-antigen protein.
- 6. The hollow nanoparticles as set forth in claims 1 through 5, wherein the hollow nanoparticles are formed by transferring a gene encoding the first protein and a gene encoding the second protein to a single eukaryotic cell by separate vectors, so that the respective genes are coexpressed in the eukaryotic cell.

- 7. The hollow nanoparticles as set forth in claim 6, wherein the eukaryotic cell is a yeast cell.
- 8. The hollow nanoparticles as set forth in claim 6 or 7, wherein the gene encoding the second protein is transferred by a vector having an Aureobasidin A-sensitive gene.
- 9. A drug that is made of the hollow nanoparticles as set form in any one of claims 1 through 8, wherein a target cell substance is encapsulated in the hollow nanoparticles.
- 10. A disease treating method using the drug as set forth in claim 8.